



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/580,696 | 05/25/2006 | Winfried Esser | 2003P10441WOUS | 5436 |

22116 7590 07/20/2009
SIEMENS CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
170 WOOD AVENUE SOUTH
ISELIN, NJ 08830

| |
|----------|
| EXAMINER |
|----------|

WONGWIAN, PHUTTHIWAT

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

3741

| | |
|-----------|---------------|
| MAIL DATE | DELIVERY MODE |
|-----------|---------------|

07/20/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--|--|--|
| Office Action Summary | Application No. 10/580,696 | Applicant(s) ESSER, WINFRIED | |
| | Examiner PHUTTHIWAT WONGWIAN | Art Unit 3741 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This office action is responsive to the amendment filed on 03/30/2009. 19-38 are currently pending in this application.

Response to Arguments

2. Applicant's arguments with respect to claims 19-38 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 19-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burgel (Pub. No. 20020157738) in view of Garcia (US Patent No. 4,140,555).
5. As to claims 19-20, 23-26, 35 and 37-38, Burgel discloses a gas turbine engine (col. 3, line 52, "gas turbine blade"), comprising: a rotationally mounted rotor 7 (fig. 1) arranged coaxially with the longitudinal axis of the engine (inherent); an intake housing (inherent) arranged coaxially with the rotor that intakes a working fluid (inherent); a

Art Unit: 3741

compressor (inherent) that compresses the working fluid; an annular combustion chamber (inherent) comprised of a plurality of components that accepts the compressed working fluid, mixes a fuel (inherent) with the compressed working fluid and combusts the compressed working fluid and fuel mixture to create a hot working fluid; and a turbine section (fig. 1) that expands the hot working fluid, wherein at least one combustion chamber (inherent) or turbine component is formed from a nickel, cobalt or iron superalloy (col. 3, line 6, "nickel-base superalloy")

Burgel does not disclose that *the precipitation strengthened by the addition of 50 ppm to 2000 ppm of a strength promoter from the group consisting of: zinc (Zn), tin (Sn), lead (Pb), gallium (Ga), calcium (Ca), selenium (Se), arsenic (As), bismuth (Bi), neodymium (Nd), and praseodymium (Pr).*

However, Garcia teaches the oxidation resistant superalloy comprises the superalloy precipitation strengthen by 0.005-0.1 wt% of calcium (ca), (abstract, line 10).

The promoter compositions taught by Garcia differ from applicants' claimed promoter composition in that Garcia does not teach the exact same proportions as recited in the instant claims.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include *addition of 50 ppm to 2000 ppm (0.005-0.2 wt%) of a strength promoter from the group consisting of: zinc (Zn), tin (Sn), lead (Pb), gallium (Ga), calcium (Ca), selenium (Se), arsenic (As), bismuth (Bi), neodymium (Nd), and praseodymium (Pr)*, because the promoter proportions taught by Garcia overlap the

Art Unit: 3741

instantly claimed proportions, for the purpose of providing additional strength to the blade.

And also, It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

6. As to claims 21-22, 27-33, Burgel discloses a nickel-base superalloy for use in a gas turbine engines (col. 4, lines 38-45). As demonstrated in the following table below, the superalloy compositions disclosed by Burgel overlaps the applicants' claimed superalloy composition.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made would to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Art Unit: 3741

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

| Claims (21, 22, 27, 28) | | Burgel | Yoshinari |
|-------------------------|---------------------------------------|-------------------------|-------------------------|
| | | (col. 2, lines 1 to 50) | (col. 3, lines 1 to 14) |
| Cr | 11-13, 9-<11 wt% | 11-13 wt% | 5-14 wt% |
| W | 3-5 wt% | 3-5 wt% | 2-15 wt% |
| Mo | 0.5-2.5 wt% | 0.5-2.5 wt% | 0-6 wt% |
| Al | 3-5 wt% | 3-5 wt% | 4-7 wt% |
| Ti | 3-5 wt% | 3-5 wt% | 0.5-5 wt% |
| Ta | 3-7 wt% | 3-7 wt% | 0-12 wt% |
| Co | 0-12 wt% | 0-12 wt% | 0-10 wt% |
| Nb (Cb) | 0-1 wt% | 0-1 wt% | 0-3 wt% |
| Hf | 0-2 wt% | 0-2 wt% | 0-2 wt% |
| Zr | 0-1 wt % | 0-1 wt% max. | 0-0.035 wt% |
| B | 0-0.05 wt% | 0-0.05 wt% | 0-0.035 wt% |
| C | 0-0.2 wt% | 0-0.2 wt % | 0-0.02 wt% |
| Re or Ru | 0.1-10, 0.1-5 wt% | 1-5 wt% | Re 0-4 wt% |
| Remaining Ni, Co | | 0-5 wt % | 58 wt% or more |
| Or Fe and impurities | Ru, and a remainder Ni and impurities | | Silent of Ru |

Art Unit: 3741

7. As to claims 34 and 36, Burgel discloses the component material has an isotropic distribution, directionally solidified (col. 3, line 41, "directionally solidified") or single-crystal grain structure wherein the precipitation is the gamma phase (col. 4, line 1-20).

8. Claims 19-31 and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshinari (US Patent No. 5,611,670) in view of Garcia.

9. As to claims 19-31 and 35-38, Yoshinari discloses a high temperature gas turbine component comprising a rotationally mounted rotor (fig. 7, turbine) arranged coaxially with the longitudinal axis of the engine; an intake housing 39 (fig. 7) arranged coaxially with the rotor that intakes a working fluid; a compressor (fig. 7, compressor) that compresses the working fluid; an annular combustion chamber (fig. 7, combustor) comprised of a plurality of components that accepts the compressed working fluid, mixes a fuel with the compressed working fluid and combusts the compressed working fluid and fuel mixture to create a hot working fluid; and a turbine section 43 (fig. 7) that expands the hot working fluid wherein the blade comprises a root section (fig. 1, the part that in contact with 15); a platform section 15 (fig. 1) arranged adjacent to the root section; a tip section 17 (fig. 1) arranged radially opposite the root section; a leading edge 1 (fig. 1) arranged between the platform and tip sections; a trailing edge 23 (fig. 1) arranged downstream of the leading edge; and a main section (fig. 1 between 1 and 23) arranged between the leading edge, trailing edge, platform section and tip sections, the high temperature gas turbine component is a turbine blade (fig. 1) wherein the precipitation is the gamma phase (col. 2, line 65) and a nickel-base super alloy

Art Unit: 3741

comprises of a Ni-base superalloy having the following suitable composition, see table above.

Yoshinari does not disclose *the exact same proportions of the super alloy as claimed and the superalloy is precipitation strengthened by the addition of 50-2000 ppm, up to 1100 ppm, 100-500 ppm and 75-2000 ppm of a strength promoter that increases the strength of the component by increasing the formation of precipitants where the strength promoter is selected from the group consisting of: zinc (Zn), tin (Sn), lead (Pb), gallium (Ga), calcium (Ca), selenium (Se), arsenic (As), bismuth (Bi), neodymium (Nd), and praseodymium (Pr).*

However, Garcia teaches the oxidation resistant superalloy comprises the superalloy precipitation strengthen by 0.005-0.1 wt% of calcium (ca), (abstract, line 10).

The promoter compositions taught by Garcia differ from applicants' claimed promoter composition in that Garcia does not teach the exact same proportions as recited in the instant claims. And the superalloy compositions disclosed by Yoshinari overlaps the applicants' claimed superalloy composition

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include *addition of 50 ppm to 2000 ppm (0.005-0.2 wt%) of a strength promoter from the group consisting of: zinc (Zn), tin (Sn), lead (Pb), gallium (Ga), calcium (Ca), selenium (Se), arsenic (As), bismuth (Bi), neodymium (Nd), and praseodymium (Pr)*, because the promoter proportions taught by Garcia overlap the instantly claimed proportions, for the purpose of providing additional strength to the blade.

Art Unit: 3741

And also, It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

10. As to claims 34-35, Yoshinari discloses the component material has directionally solidified (col. 2, line 45-60) wherein the component is a gas turbine blade (fig. 1).

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 3741

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHUTTHIWAT WONGWIAN whose telephone number is 571-270-5426. The examiner can normally be reached on Monday - Thursday, 7:30am - 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MICHAEL A. CUFF can be reached on 571-272-6778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. W./

Examiner, Art Unit 3741

/Michael Cuff/

Supervisory Patent Examiner, Art Unit 3741